Migration Background and Educational Achievements in Russia*

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Abstract

This article empirically examines the impact of migration background on educational achievements in Russia. The main method consisted of logit regressions with longitudinal data for schoolchildren aged 6-14 (from 1st to 8th grades) over the 2010-2013 period (four waves). In contrast to most of the previous empirical literature, the panel data controlled the impact of time-invariant determinants of educational achievements. The findings suggest that migration background has no effect on educational achievements after controlling for socioeconomic status (SES), child's health, school type, settlement and other individual characteristics, all of which have statistically significant effects in distinguishing between successful and unsuccessful students. Thus, there is no educational gap between migrant and native students, something that differentiates Russia from the majority of developed countries.

Keywords: 1. migration background, 2. educational achievement, 3. panel data, 4. logit regression, 5. Russia.

Origen inmigrante y logros educativos en Rusia

Resumen

Este artículo empíricamente examinó el impacto del origen inmigrante sobre los logros educativos en Rusia. El principal método consistió de regresiones logísticas con datos longitudinales de escolares en edades 6-14 (del 1º al 8º grados) durante el periodo 2010-2013 (cuatro rondas). En contraste con la mayor parte de la literatura empírica previa, los datos de panel controlaron el impacto sobre los logros educativos de determinantes invariables en el tiempo. Los hallazgos sugirieron que el origen inmigrante no tiene efecto sobre los logros educativos después de controlar los efectos del estatus socioeconómico, la salud del niño, el tipo de escuela, asentamiento, y otras características personales, los cuales tuvieron efectos estadísticamente significativos para distinguir entre estudiantes exitosos y malogrados. Así pues, no hay brecha educativa entre migrantes y estudiantes nativos, lo cual diferencia a Rusia de la mayor parte de países desarrollados.

Palabras clave: 1. origen inmigrante, 2. logro educativo, 3. datos de panel, 4. regresión logística, 5. Rusia.

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Introduction

In Russia the legal and illegal movement of people from rural to urban areas, and from ex-Soviet countries to Russia, has increased dramatically over the last 20 years due to the rapid economic growth of the country and its major cities in comparison with other ex-Soviet countries and rural areas (Lukianova, 2011; Malakhov, 2014; Zayonchkovskaya *et al*., 2014). According to World Development Indicators (WDI) data from the World Bank, covering 1999 to 2013, the average GDP growth rate in Russia was 5%, but the Russian economy suffered severe economic crises in the first years after perestroika, in 1998, and later in 2009, together with the global financial crisis (Bonilla, 2012). The end of 2014 and 2015 represented serious challenges for the Russian economy, together with the Ukrainian crisis. Nevertheless, millions of migrants moved from rural areas and ex-Soviet countries to major Russian cities, principally Moscow and Saint Petersburg, in search of work. The net migration for the five-year period up to 2012 was 1.1 million migrants (WDI). Russia has the second largest concentration of international migrants, after the United States. Nowadays about 11 million migrants live in Russia, constituting approximately 7.7% of the total population (United Nations, Department of Economic and Social Affairs/Population Division, 2013).

Many of these immigrants arrive with their families, including children. Although there is a household registration system in Russia, there are no concrete figures for migrant children, primarily due to corruption in the system and the illegal nature of some of the migration, and there are also internal migrants who also need registration (Malakhov, 2014). Estimations from the Russian Federal Migration Service suggest that about 70 000 international migrant children live and study in Moscow alone. A little qualitative research indicates that international migrant children face many problems of integration, including xenophobia, discrimination, intolerance, problems speaking Russian, and alterations in their mode of thought and behavior. However, they are admitted to schools because Russian law stipulates that all children have the right to

receive education. Unfortunately, in many cases school principals do not support this law (Zayonchkovskaya *et al.*, 2014).

Given this situation, our research is motivated by the following question: how does children's migration background affect their educational achievements? This concern has been studied primarily in developed countries because they have been receiving international migrants for several decades. In the United States, empirical evidence suggests that any kind of school or residential relocation results in declines in social capital, and subsequently in low educational outcomes. For migrant children these losses of social capital are obvious (Pribesh and Downey, 1999). In addition, they usually attend resource-poor schools and come from families with a low socioeconomic status (SES), that is, their parents have low levels of education, professional status and income. Consequently, children with a migrant background can only obtain low academic achievements. This is known as the assimilation hypothesis, implying a downward mobility in educational outcomes. This hypothesis is supported by many empirical findings in the United States (Suárez-Orozco *et al.*, 2010) and in other developed countries with large international migratory flows, for example, the UK (Meunier *et al.*, 2013), Germany (Lüdemann and Schwerdt, 2012), Italy (Barban and White, 2011) and Spain (Gutiérrez-Domènech and Adserà, 2012; Vaquera and Kao, 2012), and also in countries with large internal migratory flows such as Turkey (Akar, 2010) and China (Lai *et al.*, 2014; Lin and Lu, 2014).

On the contrary, the immigrant paradox hypothesis claims that migrant schoolchildren obtain better educational outcomes than their native-born peers (Hao and Woo, 2012; Kao and Tienda, 1995; Kao, 2004; Vaquera and Kao, 2012). It seems that parental engagement, some cultural characteristics (especially in Asian students), and the motivation of migrant children have strong positive effects on their educational performance, even stronger than the negative impact of losses in social capital and low SES origin.

Despite the fundamental importance of migratory flows in Russia, to our knowledge there have been almost no studies that empirically examine the educational achievements of migrant children.

The only exception is research by Lukianova (2011), who studies a sample of migrants in Saint Petersburg and finds slightly lower educational outcomes in first-generation immigrant children in comparison with native students. On the other hand, second-generation migrants are able to obtain good educational outcomes and are highly motivated to obtain high grades in school. Nevertheless, her results are limited to basic descriptive statistics and qualitative analysis. Therefore, our research contributes to the empirical literature in two main ways. First, we study a representative sample for all of Russia. Second, we use panel data, which is uncommon in the empirical literature.

This paper proceeds as follows. Section 2 presents a brief review of the literature. Section 3 describes the data and variables used in this study. Section 4 outlines the empirical strategy, which mainly consists of logit models for panel data, and discusses and presents the results. Section 5 presents our conclusions.

Literature Review

Nowadays, the United States has the largest number of international migrants, about 46 million in 2013 (United Nations, Department of Economic and Social Affairs/Population Division, 2013). It is probably for this reason that the United States also has the largest number of studies on the educational outcomes of migrant children. The major theories on this subject apply to native and foreign-born students, including general family background theory (cultural capital, social capital, and SES), and educational and psychological approaches (Tovar-García, 2012). Clearly, children of migrants present some key particularities; for instance, because of residence and school relocation they lose friends, connections and networks, that is, social capital, which is a major explanatory variable of educational outcomes (Coleman, 1988; Pribesh and Downey, 1999). In addition, these children usually come from poor families, and their parents have low levels of education and jobs with low professional status, which is highly correlated with low levels of cultural capital, another key determinant of educational outcomes (DiMaggio, 1982).

Children of migrants, particularly newcomers, must overcome different barriers. They have to adjust their lives to new geographical and social contexts, face new schooling environments, improve their academic language skills, confront the stress of migration, and deal with xenophobia, discrimination and intolerance, and all these at an age of heightened developmental vulnerability (Pavez Soto, 2010; Suárez-Orozco *et al.,* 2010). Consequently, migrant children obtain lower academic achievements in comparison with their native peers (the assimilation hypothesis with downward mobility). This is particularly true for Mexicans in the United States, those who usually have the lowest SES (Pong and Landale, 2012). Moreover, these migrant children also face several troubles in schools when they return to Mexico, because their skills in Spanish are weak, they feel frustration, and they tend to skip class (Román Gonzalez and Zúñiga, 2014).

In other developed countries, immigrants' characteristics and the barriers they have to confront are very similar to those in the US case. In Germany, low levels of SES explain the lower grades of second-generation immigrants, who also obtain less-favorable academic recommendations for continued studying, with negative repercussions for their future in the labor market (Lüdemann and Schwerdt, 2012). After controlling for family background, migrants in Italy are more likely to have low academic achievements and to be enrolled in vocational and polytechnic schools, limiting their options to acquire a university education (Barban and White, 2011). Similar results were found in Spain, where first-generation immigrants suffered academic disadvantages, and this was particularly true for girls, although native girls have better educational outcomes than native boys in Spain (Gutiérrez-Domènech and Adserà, 2012; Vaquera and Kao, 2012). Conversely, second and third-generation migrants do not perform statistically significantly lower than native students, after controlling for individual, school and friendship characteristics (Vaquera and Kao, 2012). In the UK, second-generation immigrants have lower academic achievements in mathematics and language in primary school, and this may be attributed to low levels of socioeconomic status. Moreover, there is

some evidence that migrants from South Asia are improving their educational outcomes, principally in secondary education (Meunier *et al.,* 2013). Ledwith and Reilly (2013), based on survey data from 500 students from Galway City in the West of Ireland, found no parity of educational outcomes between migrant and non-migrant students. Moreover, their results account for the apparent emergence of an achievement gap. We can find similar results in Greece (Motti-Stefanidi, Asendorpf, and Masten, 2012), Croatia, Serbia and Slovenia (Sori, Susteric, and Gaber, 2011). Turkey and China are experiencing large internal migratory flows, and their empirical studies report similar concerns (Akar, 2010; Lai *et al.*, 2014). In Taiwan, students with an immigrant mother from a Southeast Asian country obtain lower educational outcomes, because of language concerns (Lin and Lu, 2014).

Moreover, cross-country studies and the results of recognized international programs (PISA, TIMSS and PIRLS)[1] also show that migrant students have lower academic achievements than native students (Schneeweis, 2011; Schnepf, 2004; Sori, Susteric, and Gaber, 2011). The school system in each country has a specific contribution to this gap, Those that allow migrant students more time in school, and pre-primary education, favor their educational achievements (Schneeweis, 2011). In Australia, Canada, France, Germany, the Netherlands, New Zealand, Sweden, Switzerland, the UK and the United States, we find that immigrants are at an educational disadvantage, but this is relatively lower in English-speaking countries. These countries receive and attract migrants with high socioeconomic status, and better language proficiency, and there is a selective migration effect (Schnepf, 2004). Migration regimes also play a relevant role, with empirical evidence suggesting that countries with guest labor immigration regimes negatively affect the educational outcomes of migrants (Sori, Susteric, and Gaber, 2011).

Academic achievements also differ among immigrant groups (nations or regions of origin), and they persist after controlling for

[1] The Programme for International Student Assessment (PISA) is a worldwide study by the Organization for Economic Co-operation and Development (OECD). The Trends in International Mathematics and Science Study (TIMSS) and the Progress in International Reading Literacy Study (PIRLS) by the International Association for the Evaluation of Educational Achievement are similar studies.

SES, school type and other individual characteristics. In the United States, Asian migrant students outperform other immigrant groups due to cultural values supporting hard work for educational activities (Conger, Schwartz, and Stiefel, 2011; Kao and Tienda, 1995; Kao, 2004). In the UK, in the case of second-generation immigrants, the negative impact of migration on academic achievements is insignificant for South Asian students at the age of 10 (Meunier *et al.,* 2013). Educational outcomes for Asian children not only represent individual efforts, but also family and national efforts. This is a big responsibility, in which students are pushed to obtain better academic achievements. There is evidence suggesting that immigrant communities can support educational outcomes of migrants, but its effect is weak in comparison with the impact of traditional explanatory variables (Conger, Schwartz, and Stiefel, 2011). Mainly, pre-migration parental education highly predicts educational outcomes of migrant students, yet post-migration parental characteristics also matter. Migrant children with parents who maintain a close relationship, for example helping with and monitoring homework, obtain better educational outcomes. Thus, parental engagement, a key type of social capital, is able to limit the negative impact of losses in other kinds of social capital. These parent-child interactions are stronger in Asian families than in other immigrant groups (Plunkett *et al.*, 2009).

Migration status correlates with low levels in the fundamental explanatory variables of educational outcomes, but the impact of these factors on migrant children is unclear. For instance, the correlation between SES and educational outcomes is lower in immigrants than in native students (Luthra, 2010; Pong and Landale, 2012). The native-migrant gap persists in Germany, but there is evidence of advantages for second-generation immigrants, who are less negatively affected by their parents' low level of education (Luthra, 2010), and they have similar rates of enrollment in secondary schools. We can find disparities between both groups, but they are well explained by socioeconomic factors, without a specific impact from migrant status (Krause, Rinne, and Schüller, 2014). There are several empirical studies with paradoxical findings, in which

migrant children show better academic achievements than youth with native-born parents. This type of findings is known as the immigrant paradox hypothesis.

Theoretically, migrants are optimistic; they want and believe in better life conditions in the host country (or host region, in the case of internal migrants). They will do their best, they know that it is difficult to migrate, they know that people speak other languages in other countries, that they could be racist, that the food is different, and consequently, they will have to work very hard. This optimism is transmitted to their children, who will also study very hard, and will try to demonstrate that they are better than others. In other words, parental expectations become educational expectations. For instance, Peruvian children in Catalonia expect tocomplete not only compulsory education, but also to achieve a university degree (Pavez, 2010). In addition, migrant children are well equipped to support adversities; they can learn and use the best educational practices in the host country and can also use the best practices from their country of origin. They use all of this experience to come up with creative strategies for school success. As a result, migrant children outperform their native peers (Hao and Woo, 2012; Kao and Tienda, 1995; Kao, 2004; Plunkett *et al.*, 2009; Vaquera and Kao, 2012).

In the United States, Kao and Tienda (1995) found that second-generation migrants obtain better educational outcomes than native students, and it seems that first-generation migrants are limited only by language skills. Fuligni (1997) found that both first and second generations obtain higher grades in mathematics and English than their peers from native families. Asian students are particularly advantaged, as demonstrated not only in the regression analysis, but also in case studies. For example, Vietnamese Americans present great academic success despite their low SES (Zhou, 1997). Kao (2004) found that children of immigrants obtain better grades (12th Grade GPA), after controlling for SES and other family variables, and that parent-child relationships are key factors in explaining this immigrant advantage. There are racial, ethnic and generational effects that are well controlled by parent-child rela-

tionships, but the best practices on parenting styles are unclear. In general, immigrant parents have greater control in the parent-child decision-making process, and are more likely to talk about college than native-born parents.

No consensus on the immigrant paradox has been reached; however, this hypothesis may be present in Russia because many of its immigrant children come from Asia. Of course, migrants from Kyrgyzstan, Uzbekistan, Kazakhstan and other countries and Asian regions of Russia differ from the typical Asian migrants in the United States, but they have similar attitudes regarding educational activities, considering education to be a priority, and they are willing and prepared for additional learning activities. Migrants from Caucasian regions are culturally different and they suffer the highest level of animosity among all migrant groups, yet they are optimistic and they study hard. The other main immigrant groups in Russia come from Ukraine, Belarus, Moldavia, the Baltic states or Russian regions with a clear Slavic ethnicity, with Russian as the mother tongue in many cases (Lukianova, 2011).

Russia is a multipolar world, and it has more than 150 ethnic groups, speaking more than 100 languages (Panikarova, 2015). After the collapse of the Soviet Union, many Russians who migrated to other ex-Soviet countries during communism decided to return home. They were attracted by better economic conditions in Russia, and several policies in post-Soviet countries were interpreted as policies against Russian culture, for example, policies to revitalize local languages, negatively affecting the use of the Russian language. Some estimations suggest that more than half of all international migrants to Russia are ethnic Russians, or from the Russian autonomous republics, that is, Tatars, Chuvashes, Bashkirs, Chechens, etc. (Bandey and Rather, 2013). Therefore, in Russia, we cannot expect migration background to have negative impacts on educational outcomes.

The research developed by Lukianova (2011) suggests that children of migrants, as in many other countries, face problems of language, intolerance and xenophobia, depending on ethnicity. Nevertheless, internal and international migrants (particularly

second generation) are able to obtain good educational outcomes and are highly motivated to obtain high grades in school. We find that 22% of migrant children obtain grades of "excellent" and "very good," while these marks are achieved only by 14% of native students. Children from Kazakhstan report the best school grades, outperforming migrants from Ukraine and Belarus. These paradoxical findings are limited to immigrants in Saint Petersburg (from 7th to 10th grades), and are based on descriptive statistics and qualitative analysis of a sample that excluded new migrants, or in other words, these migrant children had been living in Russia for several years already. Thus, the immigrant paradox hypothesis has not been empirically tested using advanced econometric methods and adequate control variables. In the following sections, we fill this gap by using panel data from a representative sample of Russia, as well as logit regressions, to test whether children's migration background affects their educational achievements.

Data and the Operationalization of Variables

The data used in this research are from the Russia Longitudinal Monitoring Survey (RLMS-HSE). This project is conducted by the National Research University Higher School of Economics (HSE) and ZAO "Demoscope," together with the Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology, Russian Academy of Sciences (RAS). To date, RLMS-HSE is the only nationally-representative dataset of the Russian population that includes rich data on the health and economic welfare of households and individuals. Data have been collected 22 times from 1992 to the present, including 6 000 sampled households from 2010.

Education and migration are not the main focuses of RLMS-HSE, but the dataset provides individual data on these concerns. From 2010 (round 19) to 2013 (round 22), the questionnaire for children included a key question on educational progress and three questions on migration status, allowing us to investigate the effects of migration (and other variables) on educational achieve-

ments, using panel data. Nevertheless, a limitation of the RLMS-HSE data is that many respondents avoid giving full information regarding the migration status of schoolchildren.

Dependent Variable

Table 1 presents the descriptive statistics and the correlation matrix for all of the key variables used in this article. The dependent variable of interest originally is a six-category ordinal variable measuring the child's educational achievements as reported by his/her parents (or by a responsible adult). Parents were asked "How would you estimate (his/her) progress…?" [2] with the following options: *1)* Almost all the grades are five, *2)* Basically all the five and the four, *3)* Basically all the four, *4)* Basically all the four and three, *5)* Basically all the three, *6)* Basically all the three and often the two (some parents answered that marks were not given, they did not know, or simply refused to answer). [3]

To facilitate our analysis, and the application of econometric methods with panel data, we recoded this variable in two ways to obtain dummy variables. First, we coded schoolchildren whose grades are almost all five as 1, and otherwise 0, and we called them EXCELLENT_STUDENTS. Second, we coded schoolchildren whose grades are almost all five and whose grades are all the five and the four as 1, and otherwise 0, and we called them GOOD_STUDENTS.

[2] Parents might not report the actual school grades of their children, but our econometric strategy and the longitudinal data are controlling for this possible bias, because they cannot cheat every year. In addition, the survey team (interviewers) is trained to prevent these concerns.

[3] The Russian school system theoretically includes grades from zero to five, with three as the minimal mark for passing and five as the highest grade. In practice, schoolchildren never obtain a mark below two. Children are usually accepted into the 1st grade at the age of 7. The first four years of education correspond to elementary education, 5th to 9th grades correspond to secondary education, and 10th and 11th grades to post-secondary education. After the 9th grade, schoolchildren can continue in technical education or in post-secondary education. The vast majority of schools are regular public, but there are non-residency schools (boarding schools), gymnasium (that is, schools with a specialization in some subjects), and comprehensive college or lycee, which are popularly regarded as schools of better status (Alòs-i-Font and Tovar-García, 2015).

Table 1. Descriptive Statistics and Correlation Matrix

Variable	Obs	Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EXCELLENT_ STUDENTS (1)	6554	0.12	0.33	1								
GOOD_ STUDENTS (2)	6554	0.54	0.50	0.35	1							
MIGRANT (3)	6943	0.17	0.37	-0.005	0.02	1						
SES proxy (4)	6967	0.93	0.53	0.05	0.08	-0.004	1					
School type (5)	3578	0.77	0.42	-0.05	-0.07	0.04	-0.11	1				
Child's health (6)	6947	3.75	0.55	0.01	0.08	0.01	-0.05	0.04	1			
Child's age (7)	5901	9.93	2.07	-0.11	-0.19	0.04	0.24	0.01	-0.02	1		
MALE (8)	5902	0.49	0.50	-0.09	-0.21	0.001	-0.01	0.05	0.01	0.02	1	
BIG_CITIES (9)	6967	0.15	0.35	0.02	0.04	0.01	0.13	-0.11	0.01	-0.01	0.01	1

Source: Author's calculation using RLMS-HSE data.

Independent Variables

The key explanatory variable of interest is the migrant background of schoolchildren. This variable is addressed by responses to the question: "Was he/she born in another settlement or in the one where he/she is living now?" There are four possible responses including: *1)* In another settlement, *2)* In settlement where he/she is living now, *3)* Doesn't know, or *4)* Refuses to answer. We coded schoolchildren who were born in the settlement where they are living now as 0, and schoolchildren who were born in another settlement as 1 (MIGRANT).[4] Because of data limitations, we cannot

[4] The questionnaire includes two other questions on migration: "since what year does he/she live in this place?" and "since what year does he/she live in Russian Federation permanently?" However, it is not possible to include these variables due to the huge amount of non-responses.

distinguish between first and second generation immigrants. In addition, the migration status is complex, for instance, after some years, some international migrants obtain citizenship, yet are they still migrants? This situation is common for children, and we can expect that many of them were born in Russia. Therefore, in this study the most important factor is the migration per se, that is, the change of residence location.

An initial statistical analysis based on descriptive statistics, correlation coefficients and cross tabulations (not reported in Tables to save space) did not suggest academic gaps between migrant and native students. 11.8% of migrant students and 12.2% of native students were classified as EXCELLENT_STUDENTS. Between MIGRANT and EXCELLENT_STUDENTS, the correlation coefficients are very low and are not statistically significant (Cramér's V and Kendall's tau-b equals -0.005). 55.7% of migrant students and 53.3% of native students were classified as GOOD_STUDENTS (the corresponding Cramér's V and Kendall's tau-b equals 0.02).

Other Independent and Control Variables

The empirical literature proposes a long list of determinants of educational achievements (Tovar-García, 2012, 2013, 2014), and many of these factors can be controlled by econometric models with panel data (as we explain in the next section). Family background, and socioeconomic status (SES) in particular, is a key explanatory variable with small changes over long periods of time, and this variable can be satisfactory controlled by panel data. Nevertheless, we use a proxy variable for SES using responses to the question: "Does he/she have a personal… *1)* Mobile PC, notebook, laptop, netbook, *2)* Smartphone, Communicator, i-Phone, *3)* Cell phone?" There are five possible responses including: *1)* Yes, *2)* No, *3)* Used by several family members, *4)* Doesn't know, or *5)* Refuses to answer. We gave 1 point for each positive answer and 0.5 points when the object was used by other family members. Moreover, these devices have a direct impact on educational outcomes since, for instance, children with laptops can easily find information and complete their home-

work. Thus, students with higher values on this proxy of SES should have better school grades, as theory predicts (Tovar-García, 2014).

School type influences educational outcomes because the school and teachers are like a second family, creating a context for social, emotional and intellectual development, and this is particularly true for migrant children (Akar, 2010; Vaquera and Kao, 2012). Accordingly, a dichotomous variable is included to indicate whether the schoolchild attends a regular public school (coded 1) or not (coded 0), which includes gymnasium or a school with gymnasium classes, a school specializing in profile education of subjects, comprehensive college or lycee, and non-residency school. A priori, regular schools would be associated with lower performance as compared to other school types.

A child's health can affect educational outcomes as well (Tovar-García, 2014). This is measured by a categorical variable based on parents' evaluation of his/her health as: very bad, bad, average (not good, not bad), good, and very good, (with values from 1 to 5). It is anticipated that a schoolchild's health will be positively associated with his/her educational achievements.

MALE is a dichotomous variable measured by parents' report of child's gender, either male or female (male = 1/female = 0). Although gender is not addressed specifically by theories of educational outcomes, empirical findings in Russia show that girls are more likely to obtain high educational achievements (Tovar-García, 2013, 2014), thus suggesting that our dependent variables could be influenced by gender. We also include a child's age (6 to 14 year-old children, from 1st grade to 8th grade) as a control variable.

Finally, the dichotomous variable BIG_CITIES is given the value of 1 if the schoolchild is living in Moscow or Saint Petersburg, and 0, otherwise. We can expect a positive impact on educational outcomes in the major Russian cities, which, in general, present better economic conditions and attract a larger number of migrants.

Empirical Strategy, Results and Discussion

Panel data have several advantages in comparison to cross-sectional data. It is well known that panel data offer "more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency" (Baltagi, 2005:5). To answer our main research question, it is important to note that econometric models with panel data can control for effects from independent variables that are monotonous for prolonged periods of time, as we can expect is the case for socioeconomic status, cultural capital, social capital, ethnicity, religion, place of residence, educational resources, school characteristics, and other formal and informal institutions impacting educational outcomes. This is particularly true and clear for econometric models with fixed effects.

Our main explanatory variable (MIGRANT) is also monotonous, and to obtain accurate measures of its specific impact on educational achievements, it is necessary to use a model with random effects. Note that random effects is a special case of the model with fixed effects, controlling unobserved heterogeneity when this heterogeneity is constant over time and correlated with independent variables. The main difference between both models is the assumption regarding the individual specific effect (random or fixed, uncorrelated or correlated with the independent variables, respectively).

The dependent variables (EXCELLENT_STUDENTS and GOOD_STUDENTS) are dichotomous variables, and probit or logit models for panel data are suitable, both with very similar results.[5] Thus, we base our analysis on logit regressions, in which the baseline empirical model to test the impact of migration background is given by the equation (1):

$$SchoolGradeDummy_{it} = \beta_0 + \beta_1 Migrant_{it} + \beta_2 SES_{it} + \beta_3 RegularSchool_{it} + \beta_4 Health_{it} + \beta_5 Age_{it} + \beta_6 Male_{it} + \beta_7 BigCities_{it} + \mu_i + u_{it} \quad (1)$$

[5] Originally, the dependent variable is a six-rank scale, as we pointed out in Section 3, and only the most updated software is able to run ordinal regressions with panel data. Nevertheless, the logit regressions are very useful in testing our hypotheses.

Where School_Grade_Dummy includes two dependent variables (EXCELLENT_STUDENTS and GOOD_STUDENTS), and the rest of the independent variables have been defined previously in Section 3.

Table 2 summarizes the main results. In columns, there are regressions with the corresponding dependent variable, and the independent variables are in rows (vertically read each regression). Column 1 shows the logit regression coefficients when the dependent variable is EXCELLENT_STUDENTS, and column 7 shows the logit regression coefficients when the dependent variable is GOOD_STUDENTS. In both regressions, migration background does not have statistically significant coefficients, suggesting that migrant students do not obtain lower educational achievements than native students, and they also do not outperform them. In other words, our findings do not support the assimilation hypothesis, or the immigrant paradox hypothesis. In comparison with most of the previous empirical findings in western countries, our results support the findings by Sori *et al.* (2011), who pointed out that the achievement gap between immigrant and native students is larger in old democracies than in post-socialist countries. This result agrees with the normative approach, the so-called classic view. There should not be any differences in academic performance between immigrant and native students (Lin and Lu, 2014), suggesting that students obtain fair academic achievements, independently of their migration status, after controlling for socioeconomic status (SES), child's health, school type, settlement, and other individuall characteristics.

Most of the traditional explanatory variables have the expected effect on educational achievements. The SES proxy presents the predicted sign and is statistically significant at the 1% level, that is, schoolchildren with higher levels of SES show a higher probability of being classified as excellent or good students. School type, coded 1 if the schoolchild attends a regular public school, has a negative sign; therefore, schoolchildren in regular schools have a lower probability of being classified as excellent or good students.

Contrary to our expectations, a child's health is statistically irrelevant for identifying excellent students, but it is associated with a higher probability of being classified as a good student. The dummy BIG_CITIES does not show statistically significant coefficients, indicating that Moscow and Saint Petersburg do not have any impact on the probability for obtaining higher educational achievements.

The child's individuial characteristics have significant effects. MALE presents negative signs, indicating that girls have better educational achievements than boys. This result coincides with previous empirical findings in Russian regions such as Yaroslavl (Tovar-García, 2013) and Tatarstan (Tovar-García, 2014). The child's age has negative coefficients, which indicate a lower probability of being classified as excellent or good students as children get older. Perhaps, parents are stricter on the reported marks as their children get older, subjects are more difficult in the last grades of education, or there is a puberty effect.

To check robustness, we estimated equation (1) using other econometric methods. First, we ran the regressions using the population-averaged estimator instead of random effects (see columns 2 and 8 in Table 2). Second, we estimated the regressions using probit models for panel data with random effects and using the population-averaged estimator (see columns 3, 4, 9, and 10). Third, we estimated the bivariate coefficients (see columns 5 and 11). Fourth, we estimated logit models assuming pooled data (see columns 6 and 12). Finally, we estimated all previous regressions with different combinations of the independent variables, and using a dummy variable for Moscow instead of BIG_CITIES (these results are not shown in Tables to conserve space). In general, the main findings remain qualitatively the same. However, the model presents better conditions when the dependent variable is GOOD_STUDENTS, when there are more independent variables entering significantly, and when the pseudo r2 is higher than for EXCELLENT_STUDENTS.

Table 2. Regression Coefficients of Migration Background and Other Independent Variables on Academic Achievements

Variable	EXCELLENT_STUDENTS						GOOD_STUDENTS					
	Logit RE (1)	Logit PA (2)	Probit RE (3)	Probit PA (4)	Bivariate Logit RE (5)	Pooled Logit (6)	Logit RE (7)	Logit PA (8)	Probit RE (9)	Probit PA (10)	Bivariate Logit RE (11)	Pooled Logit (12)
MIGRANT	0.08	0.02	0.05	0.01	-0.07	0.02	0.10	0.05	0.06	0.03	-0.13	0.14
	(0.29)	(0.16)	(0.16)	(0.09)	(0.18)	(0.15)	(0.24)	(0.11)	(0.13)	(0.07)	(0.14)	(0.11)
SES proxy	0.54***	0.29***	0.31***	0.16***	0.08	0.37***	0.65***	0.29***	0.37***	0.18***	0.21**	0.48***
	(0.19)	(0.10)	(0.11)	(0.05)	(0.11)	(0.11)	(0.15)	(0.07)	(0.08)	(0.04)	(0.09)	(0.07)
School type	-0.68***	-0.38***	-0.39***	-0.20***	-0.67***	-0.35***	-0.66***	-0.31***	-0.38***	-0.19***	-0.81***	-0.31***
	(0.26)	(0.14)	(0.15)	(0.07)	(0.23)	(0.13)	(0.22)	(0.10)	(0.13)	(0.06)	(0.22)	(0.10)
Child's health	0.21	0.11	0.12	0.06	0.19*	0.11	0.76***	0.34***	0.43***	0.21***	0.42***	0.42***
	(0.19)	(0.11)	(0.11)	(0.06)	(0.11)	(0.11)	(0.15)	(0.07)	(0.09)	(0.04)	(0.09)	(0.07)
Child's age	-0.44***	-0.24***	-0.25***	-0.13***	-0.33***	-0.24***	-0.52***	-0.24***	-0.30***	-0.15***	-0.35***	-0.25***
	(0.06)	(0.03)	(0.04)	(0.02)	(0.04)	(0.03)	(0.05)	(0.02)	(0.03)	(0.01)	(0.03)	(0.02)
MALE	-1.06***	-0.57***	-0.61***	-0.31***	-0.96***	-0.52***	-2.00***	-0.90***	-1.13***	-0.56***	-1.75***	-0.92***
	(0.25)	(0.14)	(0.14)	(0.07)	(0.18)	(0.12)	(0.22)	(0.09)	(0.13)	(0.06)	(0.16)	(0.08)
BIG_CITIES	0.04	0.02	0.03	0.01	0.33	-0.04	0.06	0.02	0.03	0.01	0.47**	-0.02
	(0.33)	(0.18)	(0.19)	(0.10)	(0.21)	(0.16)	(0.29)	(0.13)	(0.16)	(0.08)	(0.19)	(0.11)
Constant	0.02	0.22	0.02	0.02		0.05	3.71***	1.71***	2.09***	1.05***		1.35***
	(0.97)	(0.53)	(0.55)	(0.28)		(0.51)	(0.81)	(0.36)	(0.46)	(0.22)		(0.35)
Observations	3041	3041	3041	3041		3041	3041	3041	3041	3041		3041
Pseudo R2 (a)	0.54		0.54			0.04	0.55		0.55			0.09

(a) For models with panel data, Pseudo R2 is the scale the log-likelihood value of the model to the log likelihood of the constant-only model. For pooled logit models we use the McFadden R2

Standard errors (Observed Information Matrix OIM) in parentheses.

RE = Random effects

PA = Population-averaged

* significant at 10% level

** significant at 5% level

*** significant at 1% level

Conclusion

The assimilation hypothesis states that children of migrants obtain lower educational outcomes than their native peers because these students usually have limited family resources, with low levels of social and cultural capital, and they have to confront several barriers related to language and the stress of migration. On the contrary, the immigrant paradox hypothesis points out that migrant children obtain better educational outcomes because they are optimistic, work very hard, and can use the best educational practices from their region of origin and from the host region. Most of the empirical literature in developed countries supports the assimilation hypothesis, but there is also empirical evidence in favor of the paradox hypothesis, particularly in the case of Asian students in the United States (Kao and Tienda, 1995; Kao, 2004; Suárez-Orozco *et al.*, 2010; Vaquera and Kao, 2012).

Prior examinations of educational outcomes in Russia have generally ignored migrant children. There are almost no studies that quantitatively examine the academic gap between migrant and native students (Lukianova, 2011). Thus, we know relatively little about how migration background influences academic achievements in a country with large migratory flows marked by the Soviet past.

In this research, we used econometric methods, principally logit models with panel data, controlling for monotonous factors, and directly controlling for SES, school type, child's health, age, gender, and big cities. We conclude that children of migrants do not possess any statistically significant disadvantage or advantage over native schoolchildren. Consequently, we can claim that post-Soviet countries differ considerably from Western developed countries, as already noted by Sori *et al.* (2011). Furthermore, our findings agree with the normative classic view, which claims that there should not be any differences in academic performance between immigrant and native students (Lin and Lu, 2014).

Thus, our findings may be considered as positive, that is, it seems that policy makers do not have to develop programs or projects to support migrant students. However, our advice is to be cau-

tious, because this migration is relatively new and is continuously increasing. Previous qualitative and quantitative analyses highlight the hostile position of many Russians toward migrants (Malakhov, 2014; Zayonchkovskaya *et al.,* 2014), and a downward assimilation of these migrants might happen in the near future. Nevertheless, our findings suggest that migrant children are resilient, and this should facilitate the impact of government policies.

Over the long term, the repercussions of these migratory flows will depend on how migrant children are incorporated into Russian society. Thus, it is necessary to develop strategies to avoid the creation of parallel societies. The education process of migrant children, and equalizing the opportunities of access and outcomes, are key factors for achieving this goal. In other words, the economic assimilation of immigrants will depend on educational integration.

Future research for Russia should directly control for many other aspects of migration background such as immigrant generation, parental migrant status, language barriers, region of origin, community residence, race, and ethnicity. In this research, these factors are controlled only thanks to the panel data, but it is necessary to conduct surveys with a clear focus on migrant children because the migration flows to Russia are predicted to continue increasing jointly with new challenges.

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